

REMARKS

The claims have been clarified to recite that the variable illumination angle inspection system scans "a substrate surface" at a first angle and the, upon implementation of the deflection element, the scanning beam is deflected "to approach . . . substantially said spot on said substrate surface at a second angle." Support for the claim amendments herein are premised upon the Applicant's specification including, for example, incidence of beams along both the first angle and second angle toward the same substrate surface and substantially the same spot is provided in Figures 1-10, as discussed in the application (see, e.g., page 5, line 30 to page 6, line 13; page 7, lines 9-19; page 8, line 27 to page 9, line 27; page 12, lines 13-17). In accord with some disclosed aspects, beams are directed along both the first angle and second angle toward not only the same substrate surface, but at the same focal position. It is to be understood that the "spot" size may be varied (see, e.g., page 6, lines 11-13) and that the shape of the spot may vary, particularly in accord with the angle of incidence. The amendments are not believed to introduce new matter.

1. THE 35 U.S.C. § 102(B) REJECTION OVER KOHNO

Claims 1, 14 and 18 are rejected under 35 U.S.C. § 102(b) as being anticipated by **Kohno** (U.S. Pat. No. 5,381,225).

The Examiner alleges **Kohno** discloses a light source (1) providing a light beam, a scanner (polygonal mirror) (4) imparting scanning deflection to the light beam to provide a scanning beam approaching a substrate at a first angle and a deflection element (30) selectively insertable into an optical path of the scanning beam and deflecting the scanning beam so as to approach the substrate (8) as a second angle (citing Fig. 5; col. 8, lines 23-42).

Claim 1 recites that the variable angle illumination inspection system comprises (1) a scanner imparting scanning deflection to the light beam to provide a scanning beam approaching *a spot on a substrate surface* at a first angle" and "a deflection element selectively insertable into an optical path of the scanning beam and deflecting the scanning beam so as to cause the scanning beam to *approach one of said spot and substantially said spot on said substrate surface* at a second angle" (emphasis added).

Kohno relates to an optical system wherein the scanning beam is split into two beams which are (permanently) directed to the top and bottom surfaces of the inspected article. For example, **Kohno** shows in Figure 5 that the switching mirror 30 is used to serially switch the beam between a beam incident upon the upper surface of reticle 8 and the lower surface of the reticle (see, e.g., col. 8, lines 22-42). In contrast, claim 1 and claims depending therefrom require that the beam paths along the first angle and the second angle approach the same side of the substrate (i.e., "a substrate surface" and "said substrate surface"), as shown by way of example in Figures 1 and 2 of the Applicant's disclosure.

Similarly, independent claim 14 and claim 18 dependent thereon recite that, in the claimed variable illumination angle inspection system, the scanning element is "adapted to output the light beam along a first optical path to *a spot on surface of said substrate*, the first optical path including a portion incident to *said spot on said surface of said substrate* and forming a first angle relative to *said surface of said substrate*" and the deflection element is "selectively introduced into the first optical path to output the light beam along a second optical path to *one of said spot and substantially said spot on said surface of said substrate*, the second optical path including a portion incident to *said one of said spot and substantially*

said spot on said surface of said substrate and forming a second angle relative to *said surface of said substrate*" (emphasis added).

Thus, in contrast to **Kohno**, which shows in Figure 5 that the switching mirror 30 is used to serially switch the beam between a beam incident upon the upper surface of reticle 8 and the lower surface of the reticle (see, e.g., col. 8, lines 22-42), claims 14 and 18 require that both the light beam first optical path and second optical path are incident to the same surface or side of the substrate, as shown by way of example in Applicant's Figures 1 and 2.

As **Kohno** does not identically teach each and every aspect of the rejected claims, reconsideration and withdrawal of this 35 U.S.C. § 102 rejection is requested.

2. THE 35 U.S.C. § 102(B) REJECTION OVER IMAMURA ET AL.

Claims 1, 14 and 18 are rejected under 35 U.S.C. § 102(b) as being anticipated by **Imamura et al.** (U.S. Pat. No. 4,568,835)("Imamura").

The Examiner alleges **Imamura** discloses a light source (LS) providing a light beam (1), a scanner (mirror) 4 imparting scanning deflection to the light beam to provide a scanning beam approaching a substrate (6) at a first angle and a deflection element (3) selectively insertable into an optical path of the scanning beam and deflecting the scanning beam so as to approach the substrate (6) as a second angle (citing Fig. 1; col. 2, lines 31-55).

As noted above, claim 1 recites that the variable angle illumination inspection system comprises (1) a scanner imparting scanning deflection to the light beam to provide a scanning beam approaching *a spot on a substrate surface* at a first angle" and "a deflection element selectively insertable into an optical path of the scanning beam and deflecting the

scanning beam so as to cause the scanning beam to *approach one of said spot and substantially said spot on said substrate* surface at a second angle" (emphasis added).

However, similar to **Kohno, Imamura** relates to an optical system wherein the scanning beam is directed to the top and bottom surfaces of the inspected article. **Imamura** discloses a light source (LS) providing a light beam (1), a scanner (mirror) 4 imparting scanning deflection to the light beam to provide a scanning beam approaching the upper surface of the substrate (6) at a first angle and a deflection element (3) selectively insertable into an optical path of the scanning beam and deflecting the scanning beam so as to approach the lower surface of the substrate (col. 2, lines 35-55). In contrast, claim 1 and claims depending therefrom require that the beam paths along the first angle and the second angle approach the same side of the substrate (i.e., "a substrate surface" and "said substrate surface"), as shown by way of example in Figures 1 and 2 of the Applicant's disclosure.

Similarly, independent claim 14 and claim 18 dependent thereon recite that, in the claimed variable illumination angle inspection system, the scanning element is "adapted to output the light beam along a first optical path to *a spot on surface of said substrate*, the first optical path including a portion incident to *said spot on said surface of said substrate* and forming a first angle relative to *said surface of said substrate*" and the deflection element is "selectively introduced into the first optical path to output the light beam along a second optical path to *one of said spot and substantially said spot on said surface of said substrate*, the second optical path including a portion incident to *said one of said spot and substantially said spot on said surface of said substrate* and forming a second angle relative to *said surface of said substrate*" (emphasis added).

Thus, in contrast to **Imamura**, which shows in Figures 1 and 6 that the movable mirror 3 is used to switch the beam between a beam incident upon the upper surface of substrate 6 and the lower surface of the substrate (see col. 2, lines 35-55), claims 14 and 18 require that both the light beam first optical path and second optical path are incident to the same side of the substrate, as claimed and as shown, for example, in Applicant's Figures 1 and 2.

As **Imamura** does not identically teach each and every aspect of the rejected claims, reconsideration and withdrawal of this 35 U.S.C. § 102 rejection is requested.

3. THE 35 U.S.C. § 102(B) REJECTION OVER MURAKAMI ET AL.

Claims 1, 14-15 and 18 are rejected under 35 U.S.C. § 102(b) as being anticipated by **Murakami et al.** (U.S. Pat. No. 4,886,975) ("**Murakami**").

The Examiner alleges **Murakami** discloses a light source (10) providing a light beam (1), a scanner (11) imparting scanning deflection to the light beam to provide a scanning beam approaching a substrate (18) at a first angle and a deflection element (13, 120) selectively insertable into an optical path of the scanning beam and deflecting the scanning beam so as to approach the substrate (18) as a second angle (citing Figs. 1, 7-10).

As noted above, claim 1 recites that the variable angle illumination inspection system comprises (1) a scanner imparting scanning deflection to the light beam to provide a scanning beam approaching *a spot on a substrate surface* at a first angle" and "a deflection element selectively insertable into an optical path of the scanning beam and deflecting the scanning beam so as to cause the scanning beam to *approach one of said spot and substantially said spot on said substrate surface* at a second angle" (emphasis added).

Murakami discloses that the light beam 1 is divided into two separate light beams 3, 4 by the half mirror 120 (Figs. 8-9; col. 9, lines 35-54). A portion of the initial beam 1, labeled as scanning beam 3, is incident upon a first spot on the substrate 18, whereas the portion of the initial beam 1 deflected by the half mirror 120 is incident upon a second, distally removed, spot on the substrate 18, as shown in Figure 8. Therefore, **Murakami** does not identically disclose the subject matter of claim 1 which requires a scanner providing a scanning beam approaching *a spot on a substrate surface* at a first angle and a deflection element selectively insertable into an optical path of the scanning beam and deflecting the scanning beam so as to cause the scanning beam to *approach one of said spot and substantially said spot on said substrate surface* at a second angle.

Similarly, independent claim 14 and claim 18 dependent thereon recite that, in the claimed variable illumination angle inspection system, the scanning element is "adapted to output the light beam along a first optical path to *a spot on surface of said substrate*, the first optical path including a portion incident to *said spot on said surface of said substrate* and forming a first angle relative to *said surface of said substrate*" and the deflection element is "selectively introduced into the first optical path to output the light beam along a second optical path to *one of said spot and substantially said spot on said surface of said substrate*, the second optical path including a portion incident to *said one of said spot and substantially said spot on said surface of said substrate* and forming a second angle relative to *said surface of said substrate*" (emphasis added). Instead, as note above, **Murakami's** half mirror 120 deflects a portion of the light beam 1 in the form of scanning beams 4, to a spot of substrate 18 that is far removed from the spot upon which the light beam 1 is incident prior to the insertion of the half mirror 120, such as shown in Figures 8-9.

Not only is claim 15 patentable over **Murakami** for the reasons noted above, it is submitted that **Murakami** fails to anticipate the subject matter of claim 15 as **Murakami** fails to identically teach "the first angle is oblique to said surface of said substrate and the second angle is substantially perpendicular to said surface of said substrate" recited by dependent claim 15. Instead, Figures 7-8 show that both the first angle (i.e., the incident angle of the light path relative to the substrate 18 prior to insertion of deflection element 120 between mirrors 14, 15) and the second angle (i.e., the incident angle of the light path relative to the substrate 18 following insertion of deflection element 120 into the light path between mirrors 14, 15) are oblique relative to the substrate.

As **Murakami** does not identically teach each and every aspect of any of the rejected claims 1, 14-15 and 18. Reconsideration and withdrawal of this 35 U.S.C. § 102 rejection is requested.

4. THE 35 U.S.C. § 103(A) REJECTION OVER KOHNO AND NERI ET AL.

Claims 2-4, 8-11, 15-17 and 19-22 are rejected under 35 U.S.C. § 103(a) as being obvious and therefore unpatentable over **Kohno** in view of EU-0582868 ("**Neri**").

Neri discloses an optical scanning apparatus for scanning cigarettes (2) on a conveyor (3) using one (19) or two (25, 25') light sources to direct light onto one half of the outer surface (6) of a cigarette through a pentagonal prism (two reflecting surfaces) which redirects the beam to a different angle of incidence.

A. CLAIMS 2-3 AND 15-16

The Examiner alleges, on page 4, first paragraph of Paper No. 20, that **Kohno** alone renders claims 2-3 and 15-16 obvious as it "would have been obvious to one having

ordinary skill in the art to arrange the optical elements, since it has been held that rearranging parts of an invention involves only routine skill in the art" (citing *In re Japikse*, 181 F.2d 1019 (CCPA 1950)).

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art". *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970); see also *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995)(stating "[w]hen evaluating the scope of a claim, every limitation in the claim must be considered"). As an initial matter, it is submitted that **Kohno** (which is independently applied without reliance upon **Neri** in this aspect of the rejection) does not teach or suggest each and every element of independent claims 1 or 14, upon which claims 2-3 and 15-16 respectively depend, for the reasons stated above, reasserted herein, but otherwise omitted for brevity.

It is also submitted that the Examiner's reliance upon *In re Japikse* as a substitute for evidence of obviousness is misplaced. In the *In re Japikse* case, claims to a hydraulic power press which read on the prior art except with regard to the position of the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device. In the rejected claims, rearrangement of the optical elements does modify the operation of the device, as the directions of the light beam along the first angle and second angle are both criteria which modify the operation of the device, a variable illumination angle inspection system. Thus, *In re Japikse* is distinguishable.

Moreover, mere citation to *In re Japikse* is insufficient to discharge the Examiner's burden to establish a *prima facie* case of obviousness. In fact, the courts have held that

"[t]he mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims . . . is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art . . . to make the necessary changes in the reference device". *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Be. Pat. App. & Inter. 1984).

The Examiner has not set forth any cognizable reason why one skilled in the art would have been motivated by the teachings of **Kohno** as to modify **Kohno** to arrive at the invention of claim 1, let alone that of claims 2-3 and 15-16. Accordingly, the 35 U.S.C. § 103 rejection of claims 2-3 and 15-16 which is premised upon **Kohno** is factually and legally deficient. Withdrawal is requested.

B. CLAIM 4

Patentability of this claim is presently submitted to be predicated upon the asserted patentability of claims 1-3, reasons for which are presented above and asserted herein, but otherwise omitted for brevity. Accordingly, for all of the above reasons, it is submitted that the 35 U.S.C. § 103 rejection of claim 4 which is premised upon **Kohno** is factually and legally deficient. Withdrawal is requested.

C. CLAIMS 8-11 AND 19-22

The Examiner admits, on page 4, third paragraph of Paper No. 20, that **Kohno** does not teach the use of "a glass wedge for focusing light onto the surface of the substrate". The Examiner cites **Neri** for teaching "the use of a glass wedge (13) for focusing light on the surface of an object (6)(see figure 2)". The Examiner asserts that it would have been obvious to one of ordinary skill in the art "to replace the reflection mirrors 18 and 19 of **Kohno** by a glass wedge of **Neri** because they . . . function in the same manner". The

Examiner claims support for this conclusion by asserting that "[a] substitution for each other is generally recognized as being within the level of ordinary skill in the art".

I. EQUIVALENCE NOT ESTABLISHED

As noted in the previous response filed on May 8, 2003, the Examiner is again referred to the discussion of obviousness predicated upon arguments of equivalence in MPEP § 2144.06 and the paragraph entitled "SUBSTITUTING EQUIVALENTS KNOWN FOR THE SAME PURPOSE."¹ As discussed therein, equivalency cannot be based on the mere fact that the components at issue are, or may be, functional or mechanical equivalents. *See, e.g., In re Ruff*, 256 F.2d 590 (CCPA 1958).

Further, it bears noting that the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990). Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d at 682 (see also *In re Fritch*, 972 F.2d at 1260 (Fed. Cir. 1992)). This suggestion or motivation cannot

¹ In order to rely on equivalence as a rationale supporting an obviousness rejection, the equivalency must be recognized in the prior art, and cannot be based on applicant's disclosure or the mere fact that the components at issue are functional or mechanical equivalents. *In re Ruff*, 256 F.2d 590, 118 USPQ 340 (CCPA 1958) (The mere fact that components are claimed as members of a Markush group cannot be relied upon to establish the equivalency of these components. However, an applicant's expressed recognition of an art-recognized or obvious equivalent may be used to refute an argument that such equivalency does not exist.); *In re Scott*, 323 F.2d 1016, 139 USPQ 297 (CCPA 1963) (Claims were drawn to a hollow fiberglass shaft for archery and a process for the production thereof where the shaft differed from the prior art in the use of a paper tube as the core of the shaft as compared with the light wood or hardened foamed resin core of the prior art. The Board found the claimed invention would have been obvious, reasoning that the prior art foam core is the functional and mechanical equivalent of the claimed paper core. The court reversed, holding that components which are functionally or mechanically equivalent are not necessarily obvious in view of one another, and in this case, the use of a light wood or hardened foam resin core does not fairly suggest the use of a paper core.); *Smith v. Hayashi*, 209 USPQ 754 (Bd. of Pat. Inter. 1980) (The mere fact that phthalocyanine and selenium function as equivalent photoconductors in the claimed environment was not sufficient to establish that one would have been obvious over the other. However, there was evidence that both phthalocyanine and selenium were known photoconductors in the art of electrophotography. "This, in our view, presents strong evidence of obviousness in substituting one for the other in an electrophotographic environment as a photoconductor." 209 USPQ at 759.).

be dispensed with by an allegation that the modification is within the capabilities of one skilled in the art, as such capability is not synonymous with obviousness. *Ex parte Gerlach*, 212 USPQ 471 (Bd. App. 1980); *Panduit Corp. v. Dennison Mfg. Co.*, 774 F.2d 1082, 1092 fn.16 (Fed. Cir. 1985). It is well settled that there must be some motivation that would have led one of ordinary skill in the art to modify the prior art reference to arrive at the claimed invention. *See, e.g., Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281 (Fed. Cir. 1985); *In re Benno*, 768 F.2d 281 (Fed. Cir. 1985); *Ex parte Clapp*, 227 USPQ 972 (BPAI 1985); *B.F. Goodrich Co. v. Aircraft Breaking Sys. Corp.*, 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996); *Al-site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308 (Fed. Cir. 1999); *In re Kotzab*, 217 F.3d 1365 (Fed. Cir. 2000), among others.

Therefore, Applicants again submit that the Examiner has failed to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 as to claims 8-11 and 19-22 in view of the combination of **Kohn** and **Neri** for the above reasons.

II. REBUTTAL EVIDENCE IMPROPERLY IGNORED

A determination under 35 U.S.C. § 103 should rest on all the evidence and should not be influenced by any earlier conclusion. *See, e.g., Piasecki*, 745 F.2d at 1472-73, 223 USPQ at 788; *In re Eli Lilly & Co.*, 902 F.2d 943, 945, 14 USPQ2d 1741, 1743 (Fed. Cir. 1990). Once Applicants present rebuttal evidence, "Office personnel should reconsider any obviousness determination in view of the entire record". *See, e.g., Piasecki*, 745 F.2d at 1472; *In re Eli Lilly & Co.*, 902 F.2d at 945. In other words, all of the proposed rejections *and their bases* should be reviewed to confirm their correctness.

In view of these requirements, it is not understood how the Examiner can once again rely upon the argument that "[a] substitution for each other is generally recognized as being

within the level of ordinary skill in the art" in spite of the considerable case law presented against this point in the prior response filed on May 8, 2003.

The Examiner's statement that the prior rejections and the Applicant's response are considered "moot" in view of the new grounds of rejection is meaningless and unacceptable in view of the Examiner's reliance on the same improper basis for rejection. Therefore, if the Examiner insists on maintaining this rejection, the Examiner is requested to cite specific case law that factually and legally supports the Examiner's allegation and refutes Applicant's position that equivalence between a "glass wedge (13)" of **Neri** and "reflection mirrors 18 and 19" of **Kohno** has not been established and/or to cite specific passages in the applied references, by column and line number, as evidentiary support of any asserted art-recognized equivalence.

III. EVERY ELEMENT NOT TAUGHT OR SUGGESTED

The combination of **Neri** and **Kohno** has not been shown to teach or suggest a deflection element which "comprises a glass optical element including a first mirrored surface on a first side and a second mirror surface on a second side, wherein the scanning beam enters a third side and is reflected from the first mirrored surface and second mirrored surface obliquely toward said surface of said substrate at the second angle", as recited by claim 8.

The combination of **Neri** and **Kohno** has not been shown to teach or suggest that "a focal position of an oblique beam approaching said surface of said substrate from the second angle when the deflection element is in the optical path coincides with a focal position of a normal beam approaching said surface of said substrate from the first angle when the deflection element is not in the optical path", as recited by claim 9.

The combination of **Neri** and **Kohno** has not been shown to teach or suggest that the deflection element first mirrored surface of claim 8 "is a partially mirrored surface transmitting a portion of incident light and reflecting a portion of incident light," nor has the combination of **Neri** and **Kohno** been shown to teach or suggest "a second glass optical element is disposed adjacent the first mirrored surface to focus light transmitted through the first mirrored surface onto the same coordinate of said surface of said substrate illuminated by the scanning beam reflected by the second mirrored surface toward said surface of said substrate at the second angle", as recited by claim 10.

Moreover, claim 10 and claims dependent thereof require that " the first mirrored surface is a partially mirrored surface transmitting a portion of incident light and reflecting a portion of incident light". In contrast, **Neri** provides a pentagonal prism, which takes advantage of total internal reflection to direct the path of the light. In other words, the light beam 19a and rays 22 are totally reflected by surfaces 14, 15 and such light is not transmitted therethrough. Such partial transmission is not possible in a standard pentaprism using total internal reflection without additional components. **Neri** fails to teach or suggest this element or of the additional components that would be required to arrive at the claimed invention.

The combination of **Neri** and **Kohno** has not been shown to teach or suggest that, further to the elements in claim 10, that "a focal position of an oblique beam approaching said surface of said substrate from the second angle when the deflection element is in the optical path coincides with a focal position of a normal beam approaching said surface of said substrate from the first angle when the deflection element is not in the optical path", as recited by claim 11.

Similar deficiencies in the Examiner's proffered evidence of alleged obviousness apply equally to claims 19-22, but are omitted herein for brevity.

The legal concept of *prima facie* obviousness is a procedural tool of patent examination, allocating the burdens of going forward with production of evidence in each step of the examination process (*citations omitted*)(*see, e.g.*, MPEP § 2142). The Examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the Examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of non-obviousness.

In the instant case, it is irrefutable that the Examiner has failed to discharge the burden of factually supporting the asserted *prima facie* conclusions of obviousness as to claims 8-11 and 19-22. Withdrawal of this rejection and allowance of these claims is requested for at least this reason. **"If examination at the initial stage does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent."** *In re Oetiker* 24 USPQ2d 1443, 1444 (Fed. Cir. 1992)(*citations omitted*).

IV. INVENTION "AS A WHOLE" NOT TAUGHT OR SUGGESTED

In determining the differences between the prior art and the claims, the question under 35 U.S.C. § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530 (Fed. Cir. 1983).

The requisite motivation to support the ultimate legal conclusion of obviousness under 35 U.S.C. §103 is not an abstract concept, but must stem from the applied prior art as a whole and must have *realistically* impelled one having ordinary skill in the art to modify a specific reference in a specific manner to arrive at a specifically-claimed invention. *In re*

Newell, 891 F.2d 899, 13 USPQ2d 1248 (Fed. Cir. 1989). The case law has cautioned against focusing on the obviousness of the *differences* between the claimed invention and the prior art rather than on the obviousness of *the claimed invention as a whole*, as § 103 and *Graham v. Deere* require. See, e.g., *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 231 USPQ 81, 93 (Fed. Cir. 1986). As stated in MPEP § 2141.02, "the question under 35 U.S.C. § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious" (citing *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530 (Fed. Cir. 1983)(emphasis in original)).

Moreover, it has been held that distilling the invention down to the "gist" of an invention disregards the requirement of analyzing the subject matter "as a whole". *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984).

In view of the Examiner's distillation of the extensive and detailed structural recitations in claims 8-11 and 19-22, noted above with respect to claims 8-11, to the "gist" of "glass wedge (13)", it is submitted that the Examiner has impermissibly disregarded the requirement of analyzing the subject matter "as a whole". Accordingly, it is submitted that the asserted aspects of the 35 U.S.C. § 103 rejection of claims 8-11 and 19-22 over the combination of **Neri** and **Kohn** is improper and should be withdrawn for at least this reason.

D. CLAIM 17

Patentability of this claim is presently submitted to be predicated upon the asserted patentability of claim 14, reasons for which are presented above and asserted herein, but otherwise omitted for brevity. Accordingly, for all of the above reasons, it is submitted that

the 35 U.S.C. § 103 rejection of claim 17 which is premised upon **Kohno** is factually and legally deficient. Withdrawal is requested.

5. **THE 35 U.S.C. § 103(A) REJECTION OVER MURAKAMI AND NERI ET AL.**

Claims 2-4, 8-11, 16-17 and 19-22 are rejected under 35 U.S.C. § 103(a) as being obvious and therefore unpatentable over **Murakami** in view of EU-0582868 ("**Neri**").

A. **CLAIMS 2-3 AND 16**

The Examiner alleges, on page 5, second paragraph of Paper No. 20, that **Murakami** alone renders claims 2-3 and 16 obvious as it "would have been obvious to one having ordinary skill in the art to arrange the optical elements, since it has been held that rearranging parts of an invention involves only routine skill in the art" (*citing In re Japikse*, 181 F.2d 1019 (CCPA 1950)).

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *See case law cited supra*. As an initial matter, it is submitted that **Murakami** (which is independently applied without reliance upon **Neri** in this aspect of the rejection) does not teach or suggest each and every element of independent claims 1 or 14, upon which claims 2-3 and 16 respectively depend, for the reasons stated above, reasserted herein, but otherwise omitted for brevity.

It is also submitted that the Examiner's reliance upon *In re Japikse* as a substitute for evidence of obviousness is misplaced. *See case law cited supra*. In the rejected claims, rearrangement of the optical elements does modify the operation of the device, as the directions of the light beam along the first angle and second angle are both criteria which

modify the operation of the device, a variable illumination angle inspection system. Thus, *In re Japikse* is distinguishable.

Moreover, mere citation to *In re Japikse* is insufficient to discharge the Examiner's burden to establish a *prima facie* case of obviousness. *See case law cited supra*.

The Examiner has not set forth any cognizable reason why one skilled in the art would have been motivated by the teachings of **Murakami** as to modify **Murakami** to arrive at the invention of claim 1, let alone that of claims 2-3 and 16. Accordingly, the 35 U.S.C. § 103 rejection of claims 2-3 and 16 which is premised upon **Murakami** is factually and legally deficient. Withdrawal is requested.

B. CLAIM 4

Patentability of this claim is presently submitted to be predicated upon the asserted patentability of claims 1-3, reasons for which are presented above and asserted herein, but otherwise omitted for brevity. Accordingly, for all of the above reasons, it is submitted that the 35 U.S.C. § 103 rejection of claim 4 which is premised upon **Murakami** is factually and legally deficient. Withdrawal is requested.

C. CLAIMS 8-11 AND 19-22

The Examiner admits, on page 4, 3rd paragraph of Paper No. 20, that **Murakami** does not teach the use of "a glass wedge for focusing light onto the surface of the substrate". The Examiner cites **Neri** for teaching "the use of a glass wedge (13) for focusing light on the surface of an object (6)(see figure 2)" and asserts that "[t]hose of ordinary skill in the art at the time the invention was made to insert into the device of Murakami et al a glass wedge taught by Neri", the rationale for the modification allegedly "would have arisen from the fact that using such glass wedge would control the angle of the light incident on the substrate".

I. EQUIVALENCE NOT ESTABLISHED

Although in this example, the Examiner is not explicitly using the word substitution or equivalents, the Examiner's assertion rationale for modification is clearly premised upon the doctrine of equivalence or alternately, the level of skill in the art.

The Examiner is referred to the case law cited above. In view of the above-noted case law and remarks above, Applicants again submit that the Examiner has failed to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 as to claims 8-11 and 19-22 in view of the combination of **Murakami** and **Neri** for the above reasons.

II. REBUTTAL EVIDENCE IMPROPERLY IGNORED

In view of the case law cited above and presented in the response filed on May 8, 2003, it is not understood how the Examiner can once again argue that "[a] substitution for each other is generally recognized as being within the level of ordinary skill in the art" in spite of the considerable case law presented against this point in the prior response filed on May 8, 2003.

The Examiner is requested to cite specific case law that factually and legally supports the Examiner's allegation and refutes Applicant's position that equivalence between a "glass wedge (13)" of **Neri** and deflection elements 13, 120 of **Murakami** has not been established and/or to cite specific passages in the applied references, by column and line number, as evidentiary support of any asserted art-recognized equivalence.

III. EVERY ELEMENT NOT TAUGHT OR SUGGESTED

The combination of **Neri** and **Murakami** has not been shown to teach or suggest a deflection element which "comprises a glass optical element including a first mirrored surface on a first side and a second mirror surface on a second side, wherein the scanning

beam enters a third side and is reflected from the first mirrored surface and second mirrored surface obliquely toward said surface of said substrate at the second angle", as recited by claim 8.

The combination of **Neri** and **Murakami** has not been shown to teach or suggest that "a focal position of an oblique beam approaching said surface of said substrate from the second angle when the deflection element is in the optical path coincides with a focal position of a normal beam approaching said surface of said substrate from the first angle when the deflection element is not in the optical path", as recited by claim 9.

The combination of **Neri** and **Kohno** has not been shown to teach or suggest that the deflection element first mirrored surface of claim 8 "is a partially mirrored surface transmitting a portion of incident light and reflecting a portion of incident light," nor has the combination of **Neri** and **Murakami** been shown to teach or suggest "a second glass optical element is disposed adjacent the first mirrored surface to focus light transmitted through the first mirrored surface onto the same coordinate of said surface of said substrate illuminated by the scanning beam reflected by the second mirrored surface toward said surface of said substrate at the second angle", as recited by claim 10.

The combination of **Neri** and **Murakami** has not been shown to teach or suggest that, further to the elements in claim 10, that "a focal position of an oblique beam approaching said surface of said substrate from the second angle when the deflection element is in the optical path coincides with a focal position of a normal beam approaching said surface of said substrate from the first angle when the deflection element is not in the optical path", as recited by claim 11.

Similar deficiencies in the Examiner's proffered evidence of alleged obviousness apply equally to claims 19-22, but are omitted herein for brevity.

In the instant case, it is irrefutable that the Examiner has failed to discharge the burden of factually supporting the asserted *prima facie* conclusions of obviousness as to claims 8-11 and 19-22. Withdrawal of this rejection and allowance of these claims is requested for at least this reason.

IV. INVENTION "AS A WHOLE" NOT TAUGHT OR SUGGESTED

The Examiner is referred to the case law cited above in Section 4.C.IV. In view of the Examiner's distillation of the extensive and detailed structural recitations in claims 8-11 and 19-22, noted above with respect to claims 8-11, to the "gist" of "glass wedge (13)", it is submitted that the Examiner has impermissibly disregarded the requirement of analyzing the subject matter "as a whole".

Accordingly, it is submitted that the asserted aspects of the 35 U.S.C. § 103 rejection of claims 8-11 and 19-22 over the combination of **Neri** and **Murakami** is improper and should be withdrawn for at least this reason.

D. CLAIM 17

Patentability of this claim is presently submitted to be predicated upon the asserted patentability of claim 14, reasons for which are presented above and asserted herein, but otherwise omitted for brevity. Accordingly, for all of the above reasons, it is submitted that the 35 U.S.C. § 103 rejection of claim 17 which is premised upon **Murakami** is factually and legally deficient. Withdrawal is requested.

6. CLOSING REMARKS

The Examiner was required, under C.F.R. § 1.104(c), to "cite the best references at his or her command" and since the Examiner was also obligated to reject each claim on all valid grounds available (see MPEP § 707.07(g)). The Examiner's commitment to this mandate is clearly observed by the Examiner's **six (6)** rejections under 35 U.S.C. § 102 and § 103 over **six (6)** different references in the Office Action dated February 14, 2003, and in the presently alleged **five (5)** rejections under 35 U.S.C. § 102 and § 103 over **four (4)** references, three of which were newly applied. Thus, to date, **eleven (11)** substantive rejections have been asserted over combinations of **nine (9)** different references. Therefore, it can only be concluded that the Examiner has already set forth the best rejections possible over the applied references, if not on the first Action, then certainly on the second Action.

The minor amendments herein clearly lie within the subject matter already disclosed within Applicant's original specification, these amendments do not raise new issues that would require further search, as the Examiner's first search should have covered the invention as described in the specification, as well as the invention claimed and the inventive concepts toward which the claims appear to be directed (see, e.g., MPEP § 904). Moreover, these amendments should not require further consideration as they either make explicit that which is already implicit or narrow the claims to include subject matter that was already evident in the claims (and therefore considered)

Therefore, in view of the failure of **Neri, Murakami, Kohno, Imamura**, and the previously applied **Sick, Pirlet, Dlugos, Brierley, Peng**, and combinations thereof, to anticipate or render obvious the claimed invention, **allowance of claims 1-4, 8-11, and 14-22 is solicited.**

Claims 1 and 14 were deemed to be generic claims (see Paper No. 11, numbered paragraph 5). Therefore, rejoinder is requested as to withdrawn claims 5-7 and 12-13 which depend from claim 1 or further claims depending therefrom and therefore include all of the limitations of generic claim 1. Rejoinder is also requested as to withdrawn claims 22-23 which depend from claim 14 or further claims depending therefrom and therefore include all of the limitations of generic claim 14.

Upon the allowance of a generic claim, applicant is entitled to consideration of claims to additional species which are written in dependent form or otherwise include all of the limitations of an allowed generic claim as provided by 37 C.F.R. § 1.141.

Therefore, allowance of claims 5-7, 12-13, and 22-23 is also solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

MCDERMOTT, WILL & EMERY

A handwritten signature in black ink, appearing to read 'W.D. Pegg', is written over the printed name.

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